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*Assimilation in Sweden:
Wages, Employment and Work Income*

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Wages, Employment, and Work Income**

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ABSTRACT

While differences in days in unemployment even out after some time after immigration, wage differences between immigrants and natives remain in the long run. Employment assimilation is more or less immediate for labour immigrants, while it takes approximately twenty years for non-labour immigrants to obtain the same employment status as natives and labour immigrants. We also find that the high educated non-labour immigrants' income of work lag behind those of high educated natives more than wages of low educated non-labour immigrants do to low educated natives. Thus, low educated immigrants assimilate faster than high educated. Similarly, male non-labour immigrants' work income lag behind male natives' income more than female non-labour immigrants' income do to female natives' income. Thus, female immigrants assimilate faster than male immigrants.

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Introduction

Integration of immigrants is most often studied by comparing the wages of immigrants to those of natives.¹ However, even if wages (per time unit) should be fully equalised one still cannot draw the conclusion that immigrants are fully integrated in the labour market since immigrants may be subject to more unemployment than natives. Studies on the unemployment differences are normally based on the estimation of between group differentials in unemployment risk rather than the individuals' experience in terms of number of unemployment days. Studies on differentials of total earnings do not separate wage assimilation from employment assimilation.

The primary purpose of this paper is to estimate an integrated model by which we may analyse work income differences by separating wage (per time unit) effects from employment effects. Access to data on individuals' wages, days in unemployment and work incomes makes possible such an analysis. We want to find out whether it is poor labour market attachment, i.e. excessive number of days in unemployment, or slow wage equalisation that prevents total work incomes of immigrants to reach those of natives in a shorter period of time.

A second feature of our study is that we separate labour force immigrants from non-labour force immigrants like refugees and migrants having immigrated for instance for family reasons. This distinction is important since labour immigrants have arrived of free will and, typically, may return to the home country if not pleased with the outcome in the host country. Moreover, a necessary condition for labour immigrants to enter the host country is that a job has been obtained. In this perspective, immigration of workers from countries of similar income levels does not give rise to an "assimilation problem" that is worthy of any analysis. The option to remigrate if dissatisfied or after having obtained an attractive offer is generally not open to e.g. refugee immigrants who exclusively in our case come from countries of considerably lower income levels.² Unlike labour immigrants who immediately go to work in

¹ Wage assimilation is thought of either as a closing of the wage gap between immigrants and natives (Chiswick (1978)) or as immigrant wages rising with time in the host country (LaLonde and Topel (1992)). See also the discussion in Borjas (1999).

² Nekby (2006) is a careful study of the emigration of immigrants in Sweden. Edin, LaLonde and Åslund (2000) discuss the effects of emigration on the assimilation rate and argue that if emigration of the least successful is not accounted for, the true assimilation effect may be overestimated. However, it is not obvious that a government should perceive low rates of assimilation among immigrants that may benefit from moving back or by moving to

the host country, administrative and other reasons may force refugees and other non-labour immigrants to wait for a long time until they enter the labour force and can start looking for jobs.

We also discuss a methodological problem represented by a requirement that the parameters of the regression models are identified and can be estimated without bias. A basic and popular model of wage assimilation is the so called *synthetic panel method* due to Borjas (1985)³ and in which multiple cross sections of individuals are combined and the labour market outcomes of arriving cohorts of immigrants are tracked over time. As stressed by Borjas, parameter identification requires limiting restrictions on the model. However, Bratsberg, Barth, and Raaum (2006) (BBR henceforth) and Barth, Bratsberg, and Raaum (2004) argue that the limiting restrictions are in general unacceptable unless regional unemployment is used as a control variable in the estimation of a Borjas type of wage assimilation model. Thus, BBR argue that unemployment, as a macroeconomic variable, has a place in the wage equation used for studying wage assimilation and is necessary not only for identification but also for generating unbiased results.⁴ The basic argument is that the sensitivity of immigrants' wages to economic fluctuations is different from that of natives.

Like BBR (2006), we shall use regional unemployment as a control in the wage equation, but we shall also use the individuals' days in unemployment across the years. This variable captures the possibilities for the individual to extract a high wage in the bargaining process. Few unemployment days enhances the bargaining power as it captures recent work experience and may be an indication of high productivity. In concomitant regressions, this variable is a dependent variable and we show that the identification problem holds also for the unemployment equation requiring an extra identifying covariate. Based on the Phillips curve, we argue that inflation may serve that purpose and make possible a proper identification of the parameters involved in the equation for days in unemployment.

a third country as a problem that needs policy measures. Lack of earnings assimilation among refugee immigrants that do not have an international relocation option, is, however, an obvious problem to welfare states. Thus, whether assimilation is obtained by immigrants accumulation of local human capital or by emigration of the least successful, could be considered immaterial from a policy point of view. We focus on the non-labour immigrants that in general do not have the option of remigration.

³ See also Borjas (1999).

⁴ Indeed, they show that previous studies on the US may have exaggerated the pace of wage integration between immigrants and natives.

A central issue is the duration of years in the immigration country until immigrants' wages, labour market attachment and income of work has reached (if at all) the level of the corresponding variables of natives. As expected, this duration differ widely between labour immigrants and other immigrants like refugees, family migrants etc. In particular, almost all the differences between immigrants and natives in terms of unemployment days are made up of unemployment among non-labour immigrants.

Only few previous studies on assimilation issues in Sweden are available. Edin, LaLonde and Åslund (2000) examine the effects of immigrant emigration on assimilation rates. Using longitudinal Swedish data, they find significant effects of earnings assimilation only for immigrants from outside the OECD and that relative earnings grow only during the first years upon arrival. Neither OECD immigrants nor non-OECD immigrants reach earning parity with native workers. Studies of relative wage differences between immigrants and natives exist, though, like Aguilar and Gustafsson (1994) and Scott (1999) showing that immigrants relative earnings have declined in Sweden. A study by Ekberg (1993) showed that in the 1960:s average immigrant earnings were 20 percent higher than natives while in the 1980:s they earned 20 percent less. Clearly, this is related to the increasing share of non-labour (mainly refugees) workers in the immigrant stock and not to a decline in relative schooling or work experience (Wadensjö (1994)).⁵

Studies of differentials in unemployment in Sweden are limited but a notable exception is Arai and Wilhelmsson (2004). They find that non-European immigrants face an unemployment risk twice as large as the corresponding risk for native workers. They argue that trade unions and employers discriminate immigrant workers by implementing the Employment Security Act differently across the groups.

Modelling integration

In this section we present the basic theoretical considerations and the regression equations that follow. The basic synthetic panel model of Borjas (1985) consists of one equation determining immigrant wages and another determining native wages. While in the empirical

⁵ More studies have been performed on other Nordic countries. Husted, Skyt Nielsen, Rosholm and Smith (2001) estimate assimilation in an integrated model for Denmark and stress the importance of immigrant status for the results. In particular, refugee immigrants' labour market outcome falls short of natives. Hayfron (1998) and Longva and Raaum (2003) both show significant assimilation effects on relative earnings in Norway.

application we distinguish labour immigrants from non-labour immigrants, here we specify the model only in terms of immigrants and natives and relegate the separation of the two immigrant groups to the empirical application. We shall first set up the basic wage equations for immigrants and natives, respectively, and then turn to motivating the equations. Thereafter follow the corresponding equations for employment and income for work.

The estimation equation for wages of immigrant j in time t is determined as:

$$\ln w_{jt} = \phi^i X_{jt} + \delta^i A_{jt} + \alpha YSI_{jt} + \sum_m \beta_m C_{jm} + \phi^i \ln u_{jt} + \tau^i \ln u_t^r + \sum_s \kappa_s \Pi_{js} + \varepsilon_{jt} \quad (1)$$

where top index i indicates the immigrant population. The wage w_{jt} is the full time equivalent monthly wage rate covering a fixed wage, fixed extra wages, bonuses, performance pay, different wage compensations etc. X_{jt} is a vector of socioeconomic characteristics, A_{jt} is age of the worker at the time of observation, YSI_{jt} is the number of years since immigration, C_{jm} is an indicator variable capturing the cohort, i.e. the calendar year during which individual j immigrated, u_{jt} is the number of days in unemployment during year t , u_t^r is regional unemployment, and Π_{js} is an indicator variable equal to unity for an observation in calendar year t . Non-linearities in age, years since immigration and other variables and interaction terms are not shown but will be added in the empirical application.

For native worker j the corresponding wage equation reads:

$$\ln w_{jt} = \phi^n X_{jt} + \delta^n A_{jt} + \phi^n \ln u_{jt} + \tau^n \ln u_t^r + \sum_s \kappa_s \Pi_{js} + \varepsilon_{jt} \quad (2)$$

where top index n indicates the native population. In (1), the parameter β captures any time invariant differences in wages across arrival cohorts and in (1) and (2) the κ^i and κ^n measure the periodical macroeconomic effects on immigrants and natives, respectively. The coefficient α in (1) measures the effects of spending one more year in the host country.⁶

⁶ As noted by Borjas (1999), α and δ^i must exceed δ^n for immigrants' wages to grow faster than natives' wages.

The relation $YSI_{jt} \equiv \sum_{t=1}^{\Omega} \prod_t (T_t - C_{jt})$ implies collinearity between YSI , C and Π . To identify the parameters α , β and κ , it is then necessary to impose a restriction like $\kappa^i = \kappa^n$. This assumption, that trends and transitory changes in the conditions of the macro economy and in the labour market have the same effect on wages of natives and of immigrants, is however not innocent. It is forcefully rejected by BBR (2006, 2004) *unless* some other variable capturing the macroeconomic situation is included. For this reason they introduce regional unemployment as a determinant, and argue that unemployment has quite different effects on immigrants' and natives' wages. Having thus controlled for the macroeconomic conditions, the condition $\kappa^i = \kappa^n$ is acceptable as a restriction that yields identification.

Following BBR (2006) we include a measure of regional unemployment to capture the macroeconomic changes over the years included in our data set. But we also include a variable to capture the *individuals'* labour market situation, as measured by the number of days in unemployment, u_{jt} . This variable is a natural determinant of wages since the number of days in employment affects the individual's possibility of extracting a high wage. More days unemployed limit the labour market experience of the individual which reduces wages. Moreover, many unemployment days reflect a poor labour market status and are associated with a low reservation wage.

Like wages, days in unemployment can be argued to be determined by individual characteristics. Therefore, we must be careful to interpret the parameter estimates as conditional on the individual's unemployment situation.

Access to the number of days in unemployment also opens up for an analysis of the determinants of the labour market situation of immigrants relative to natives. Obviously, the labour market situation is determined by individual characteristics like education, gender, age etc.⁷ For immigrants, we are ultimately interested in evaluating the effects of years in Sweden on the number of days employed. We will argue below for the following estimation equation for the number of days in unemployment for immigrant j during year t :

$$\ln u_{jt} = \phi^{*i} X_{jt} + \delta^{*i} A_{jt} + \alpha^* YSI_{jt} + \sum_m \beta_m^* C_{jm} + \gamma^{*i} R_{jt} + \sum_s \kappa_s^* \prod_{js} + \eta^i INFL_t + \varepsilon_{jt}^*. \quad (3)$$

⁷ Cf. Arai and Wilhelmsson (2004) who estimate hazard functions of unemployment using personal characteristics as regressors.

The variable R_{jt} captures the regional effects while $INFL_t$ is the inflation rate at time t , to be explained below. Again, non-linearities in age, years since immigration and other variables are not shown but will be added in the empirical application.

For native worker j the corresponding unemployment equation reads:

$$\ln u_{jt} = \phi^{*n} X_{jt} + \partial^{*n} A_{jt} + \gamma^{*n} R_{jt} + \sum_s \kappa_s^* \prod_{js} + \eta^n INFL_t + \varepsilon_{jt}^*. \quad (4)$$

Again we face an identification problem, now in (3), since $YSI_{jt} \equiv \sum_{t=1}^{\Omega} \prod_t (T_t - C_{jt})$ applies to this equation as well. To impose the identifying restriction $\kappa^{*i} = \kappa^{*n}$ we again need to control for a variable that captures the macroeconomic effects on employment. Based on the Phillips relation, we include the inflation rate, $INFL$, as a determinant capturing macroeconomic effects on unemployment days. Since the macroeconomic process can be expected to affect immigrants differentially from natives, we estimate η^i and η^n and the restriction $\kappa^{*i} = \kappa^{*n}$ can be imposed.

Probably the best overarching representation of the assimilation of immigrants is to estimate income of work, i.e. the product of employment and wages for immigrants and natives respectively. The products immediately derive from (1) through (4). For immigrants, (1) and (3) yield

$$\ln(e_{jt} w_{jt}) = \ln e_{jt} + \ln w_{jt} = \phi^{**i} X_{jt} + \partial^{**i} A_{jt} + \alpha^{**} YSI_{jt} + \sum_m \beta_{jt}^{**} C_{jm} + \gamma^{**} R_{jt} + \sum_s \kappa_s^{**} \prod_{js} + \eta^* INFL_t + \varepsilon_{jt}^{**} \quad (5)$$

where e_{jt} is determined as $(1 - u_{jt}/365)$ and where we have factored out u_{jt} .

Similarly, for natives, (2) and (4) yield:

$$\ln(e_{jt} w_{jt}) = \ln e_{jt} + \ln w_{jt} = \phi^{**n} X_{jt} + \partial^{**n} A_{jt} + \gamma^{**} R_{jt} + \sum_s \kappa_s^{**} \prod_{js} + \eta^* INFL_t + \varepsilon_{jt}^{**}. \quad (6)$$

Estimating (1) through (6) gives a rich information set from which it would be possible to assess the rate of assimilation of immigrants in a host country. Moreover, if the rate is low the

analysis allows us to evaluate whether it is slow wage assimilation or slow labour market assimilation or both that constitute the problem.

Data

We use data from Statistics Sweden based on event data and individual data on monthly wages, personal characteristics etc.⁸ Data are collected for 1996 through 2002 and covers an unbalanced panel of totally 603 530 observations of which 29 251 have been classified as labour immigrants and 27 766 as non-labour immigrants. The classification of immigrants is based mainly on country of birth but also on period of immigration into Sweden and is presented in Table A2 in Appendix.⁹ This classification can never be made perfect since information of the status of the individuals is not available. One should note that some immigrants from a certain country could be labour immigrants while others could be non-labour immigrants but that all immigrants would have to be classified as belonging to either of the two categories.¹⁰ Though rough, the classification is still of importance to the assessment of the results.

Data are restricted to workers in age groups 18 to 64. Table A1 in Appendix shows the means, standard deviation, minimum and maximum values for all data and subdivided into labour, immigrants, non-labour immigrants, and natives. Definitions of variables are found in the notes.

The public sector is fully covered in data while data for the private sector are sampled. The wage variable is a full time equivalent monthly wage rate covering a fixed wage, fixed extra wages, bonuses, performance pay, different wage compensations etc.

There are selection problems involved which should affect the evaluation and interpretation of the results. We base the analysis on an unbalanced data set much to avoid the “survivorship bias” that otherwise afflict the results. However, like other migration studies we cannot avoid the fact that some immigrants choose to emigrate and that therefore there will not necessarily be a randomly selected set of immigrants remaining in the data. This issue is of importance if

⁸ Data available as a part of the MONA system of Statistics Sweden, Örebro. The data set was put together by the Trade Union Institute for Economic Research.

⁹ For instance, an immigrant from Spain is classified as non-labour immigrant if immigration took place during the dictatorship years between 1936 and 1975.

¹⁰ A case in point is Turkey from which both labour immigrants and non-labour immigrants (like Kurds) emigrate to Sweden.

one wants to determine whether convergence in terms of earnings, wages, or employment can be interpreted as assimilation since part of the equalisation between immigrants and natives may be caused by emigration. Thus, to the extent that we use the concept of assimilation, this should not only be thought of as policy effects but also of emigration effects.

Our focus is primarily on non-labour immigrants, of which we expect a clear majority to be refugee immigrants. Unlike labour immigrants, their emigration is not likely to depend on the rate of economic assimilation but rather on aspects totally unrelated to assimilation, like the political situation in their home country. Edin et. al. (2000) discuss the possible bias and find that it may be large, particularly for Nordic immigrants, and they claim that the rate of assimilation may be overestimated.¹¹

As argued, the question of assimilation is evidently of no interest for immigrants from Nordic countries or from other OECD countries where wage levels are as high as or higher than in Sweden. We shall not dwell further into this issue, but recognise that equalisation of earnings or employment may be due to assimilation as well as to emigration of possibly non-randomly selected immigrants (and natives for that matter) and concentrate on the gaps between non-labour immigrants and natives.

Another limitation is that full time unemployed workers are excluded from the data set. For these workers no wage variable can be defined. This limitation should be remembered but since other studies face the same problem, comparisons are possible.

Empirical evaluation

In Table A3 in Appendix we present the results from estimating equations (1) through (6) and in which we have added higher order terms of several explanatory variables and interaction terms not reported in the equations above. The inclusion of polynomials and the interaction terms makes the tracing of the effects of the independent variables on the dependent ones cumbersome. A more efficient way to present the results is to make predictions of the effects of number of years in Sweden on the relative position of immigrants.

¹¹ Their results are questioned in a highly critical comment by Arai (2000) who claims, based on alternative specifications accounting for the correlation between age and earnings, that "...the hypothesis that movers are not different from stayers with respect to earnings is not rejected due to the fact that there is no evidence for an age-independent and unambiguous relation between earnings and emigration."

Before turning to prediction of assimilation, we first want to explore the relations between unemployment days and wages. To what extent does extra unemployment cause lower wages and do the effects differ between natives and labour and non-labour immigrants? Using the relevant parameter estimates in column 1 in Table A3 in Appendix we find the results presented in Table 1.

Table 1. Elasticities of wage with respect to days in unemployment. Evaluated at mean days in unemployment. Non-labour immigrants, labour immigrants and natives.

<i>Group of workers</i>	<i>Elasticity</i>	<i>Mean days in unemployment</i>
<i>Non-labour immigrants</i>	-0.160	14.86
<i>Labour immigrants</i>	-0.044	5.75
<i>Natives</i>	-0.001	5.58

Evaluated at the mean the elasticity of wages with respect to unemployment days is 0.16. The corresponding elasticity for natives is virtually zero when evaluated at their, considerably lower, mean. This implies that employment is not only of importance for obtaining a wage income but that it also affects the *level* of the wage. The reasonable interpretation is that there are non-linearity effects i.e. that the effect on wages becomes large only when the number of days increases significantly. Possible ways in which the number of days in unemployment affects the wage rate is that the bargaining position weakens as days in unemployment rises. Moreover, the reservation wage may fall. Finally, the more days in unemployment the less work experience that tends to yield lower wages.¹²

Sweden has experienced several waves of immigration, both of labour immigrants, particularly during the 1960:s and early 1970:s, and of non-labour immigrants like refugees, particularly in the early 1990:s. Based on the results from applying our empirical models we may identify the paths of assimilation, both of labour and non-labour immigration in terms of work incomes, wages, and days in unemployment. We should remember though that the differences between immigrants and natives in terms of earnings and employment are also affected by emigration. This holds particularly for labour immigrants. Still, we shall refer to

¹² See a discussion in BBR (2006).

equalisation between immigrants and natives as assimilation only implicitly accounting for effects of emigration.

Maybe the most far-reaching measure of assimilation is obtained by comparing income of work between immigrants and natives. This measure not only captures wage assimilation but also assimilation in terms of days in employment expressing how well established the individual worker is in the labour market.

We shall evaluate the assimilation effects by predicting work incomes, wages and days in unemployment for natives and our two immigrant groups for which we study the effects of number of years in Sweden on the differences compared to the native work force. The baseline prediction concerns immigrants who are 25 years of age at the time of immigration and we then predict the incomes of immigrant workers with up to 39 years in Sweden (age 64). The resulting profiles for this typical immigrant worker are then compared to those for native workers who are between 25 and 64 years old.

Work income assimilation

Figure 1 shows the predicted work incomes, defined as log of real monthly wages times the share of days employed, for natives, labour immigrants and non-labour immigrants, respectively. The X-axis shows the number of years in Sweden and the age obtained by adding 25. Thus, the age is 25 at the first point (years in Sweden=0) and 64 at the terminal point.

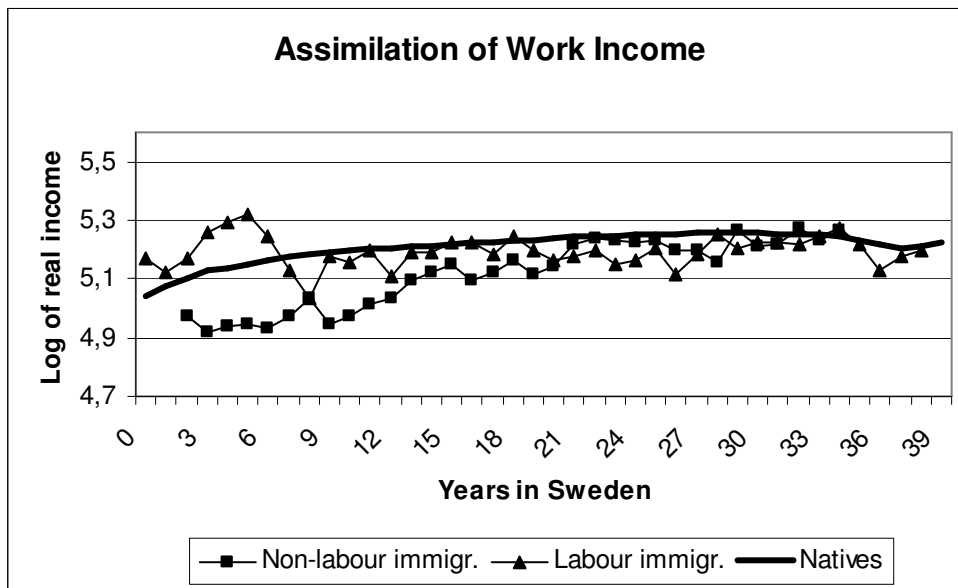


Figure 1. The profiles show work incomes paths for the two groups of immigrants and for a comparison group of native workers. Predictions based on the estimates in Table A1, column 3. The profiles for the two immigrant groups are drawn for individuals who are 25 years old at the time of immigration to Sweden. The natives are 25 years old at “0 years in Sweden” and 64 at “39 years in Sweden”.

Figure 1 shows the importance of separating labour immigrants from non-labour immigrants. There does not really exist a work income assimilation problem for immigrants that we have classified as labour immigrants and, as seen in the figure, at least during the first five years the adjusted work incomes exceed those of natives. These excessive work incomes are not present after six to seven years in Sweden. This fact may suggest that temporary immigrants are highly successful in the Swedish labour market. Workers may have arrived for a short duration to fill up a temporary excess demand in some sectors, or be stationed temporary in Sweden representing some international firm, etc.¹³ The excessive work incomes also suggest that the effects of emigration on the wage adjustment are of a crucial importance; discussing assimilation of labour immigrants would be an idle exercise in this perspective.

Concerning non-labour immigrants, i.e. mainly refugee immigrants, there are major differences between their incomes and those of natives and labour immigrants. These large differences remain even up to 35 after immigration to Sweden. According to Figure 1, non-labour as well as labour immigrants’ income of work lag behind natives’ income of work for a very long period of time.

¹³ This result is contrary to that in Edin, LaLonde and Åslund (2000) who find that the least successful are more prone to leave.

Why do these differences remain? The regression results in Table A1 allow us to illuminate whether it is slow adjustment in terms of employment or wages or both that account for the long-run differences in work income. To illuminate the issue we first turn to employment assimilation.

Employment assimilation

Figure 2 shows the adjustments in terms of days in unemployment. We see from this figure that labour immigrants and natives are equally well established in the labour market during most of the time span. Thus, for labour immigrants any gaps in work income that remain in the long run are due to wage differences and not to employment differences.

The striking feature of Figure 2 is the differences between the labour market situation of non-labour immigrants on the one hand and natives and labour immigrants on the other. To start with, the number of days in unemployment is more than twice as high for recently arrived non-labour immigrants. Though the unemployment curve falls precipitously, it takes some 20 years in Sweden until the number of unemployment days is similar to that of native workers and labour immigrant workers. After that, however, the differences are surprisingly small.

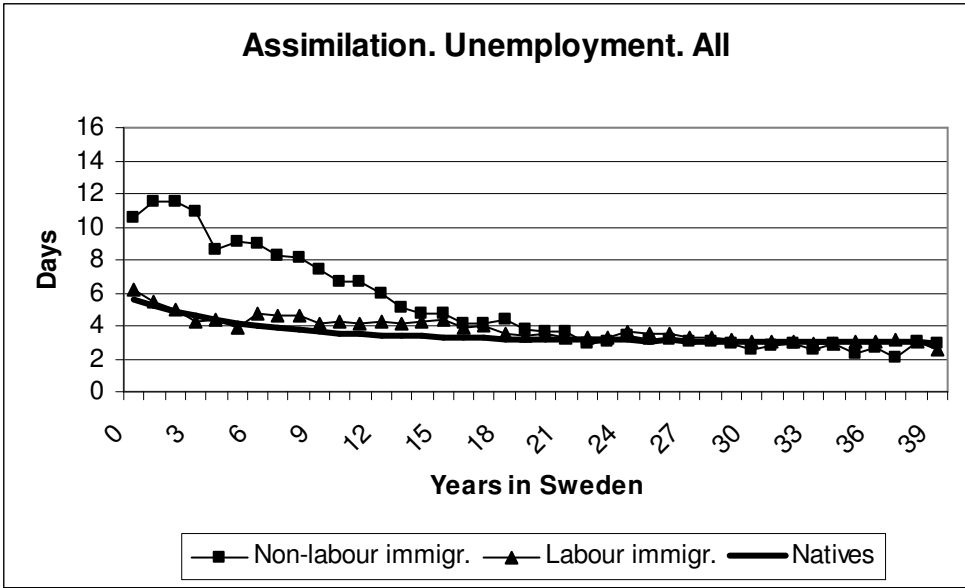


Figure 2. The profiles show unemployment paths for the two groups of immigrants and for a comparison group of native workers. Predictions based on the estimates in Table A1, column 2. The profiles for the two immigrant groups are drawn for individuals who are 25 years old at the time of immigration to Sweden. The natives are 25 years old at “0 years in Sweden” and 64 at “39 years in Sweden”.

Wage assimilation

The results above suggest that the long run differences in work incomes are due to lagging wages. In Figure 3 we show how immigrants' (adjusted) wages change with years in Sweden in comparison to native wages.

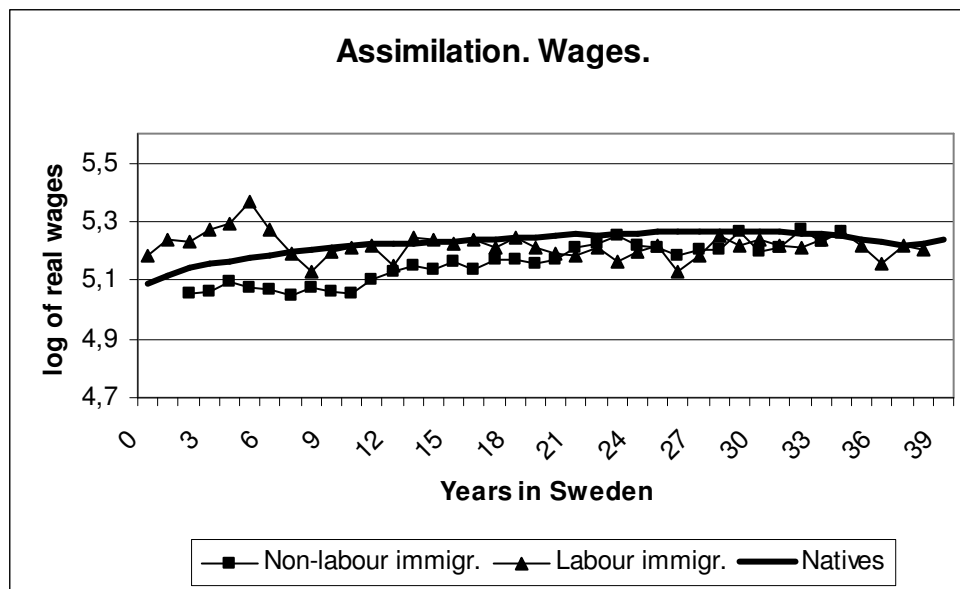


Figure 3. The profiles show wage paths for the two groups of immigrants and for a comparison group of native workers. Predictions based on the estimates in Table A1, column 1. The profiles for the two immigrant groups are drawn for individuals who are 25 years old at the time of immigration to Sweden. The natives are 25 years old at "0 years in Sweden" and 64 at "39 years in Sweden".

The similarities between figures 3 and 1 are obvious. In terms of monthly wages most of the gap between non-labour immigrants and natives vanishes during the first fifteen years. Nevertheless, as for differences in work incomes much of the differences in wages remain even after 25 years in Sweden. Wage differences tend to remain though on a low level for immigrants for almost the whole working life in Sweden. These results can be compared to those reported for the US in BBR(2006) where the reduction of the wage gaps between immigrants (labour and non-labour aggregated) and natives also comes to a halt after 10-15 years.¹⁴ For both countries there remains a wage gap also in the long run.

¹⁴ See BBR (2006) Figure 2. A difference, though, is that BBR evaluate their results assuming identical values of the independent variables for all workers. Notable is also that BBR do not separate labour from non-labour immigrants.

The importance of disaggregating immigrants into labour and non-labour is evident from Figures 1 and 2 but also in Figure 3. The two immigrant groups are approximately of equal size and had they been aggregated the wage gaps during the initial 5-10 years in Sweden had vanished. The wage gap problem is one solely of relevance for the non-labour immigrant group. This suggests that there could be huge wage gap differences also in the US data within the immigrant groups aggregated by BBR (2006).

For labour immigrants, (adjusted) wages are considerably higher during at least the first five to six years. It suggests that almost all the differences in work incomes noted in Figure 1 are due to wage differences. Noteworthy from Figure 3 is also that after 20 years in Sweden, labour and non-labour immigrant wages do not differ and both are lower than those of natives.

A basic finding is that, in the short term, at least during the first five to ten years, the group of labour immigrants having been a short period in Sweden do very well in the Swedish labour market. Workers having been here for longer periods tend to lag behind (see e.g. Figure 1). We argued that this profile may be caused by labour immigrants remigrating after a spell of high wages in Sweden during e.g. labour shortage in some sectors in the host country. This implies that the stock of labour immigrants, after remigrations of some prosperous migrants, over time should be more homogenous. To investigate this, we show in Figure 4 below the standard deviations of wages and unemployment against time in Sweden (age) for labour immigrants and for natives.

The standard deviation for the stock of natives is almost constant for unemployment and rises for wages. For labour immigrants both curves fall over time, as expected, suggesting that the curves for labour immigrants in Figures 1 through 3 are strongly affected by emigration. The fact that average wages of labour immigrants are initially very high and falls to below those of natives could therefore be explained by remigration of well paid, fully employed workers.

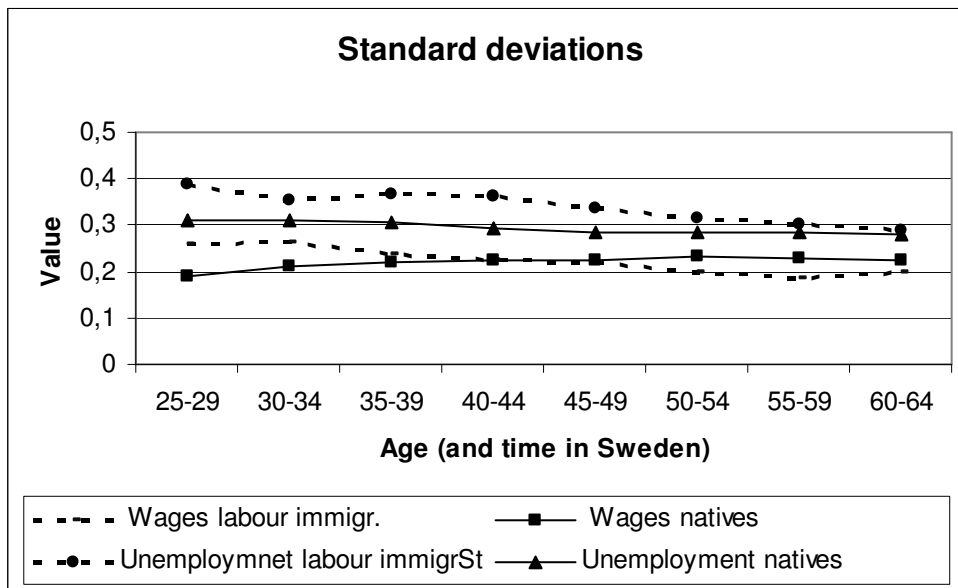


Figure 4. Standard deviations for native and labour immigrant wages and unemployment.

Assimilation within some relevant sub-groups.

The low-educated

We may dwell further into the assimilation issue by focusing on the wage-, employment -, and work income paths of selected groups. Of particular interest is the assimilation across gender and across educational groups. Figure 5 shows wage assimilation for low educated workers defined as workers with no tertiary education. We see that wage differences between non-labour immigrants and natives for low educated workers prevail almost for the whole working life time in Sweden. In particular, the wage development is particularly weak during the first fifteen years. Then there is catching-up during many years but differences in the (adjusted) wages still remain even after 30-35 years in Sweden. Also for labour immigrants there remain wage differences compared to natives.

We may now consider employment assimilation of the low educated in Figure 6. First we note that there are only small deviations between labour immigrants and natives in terms of days in unemployment. For non-labour immigrants there are major deviations but we see a steady adjustment towards par with labour immigrants and natives but it takes some 20 years in Sweden until this situation is reached.

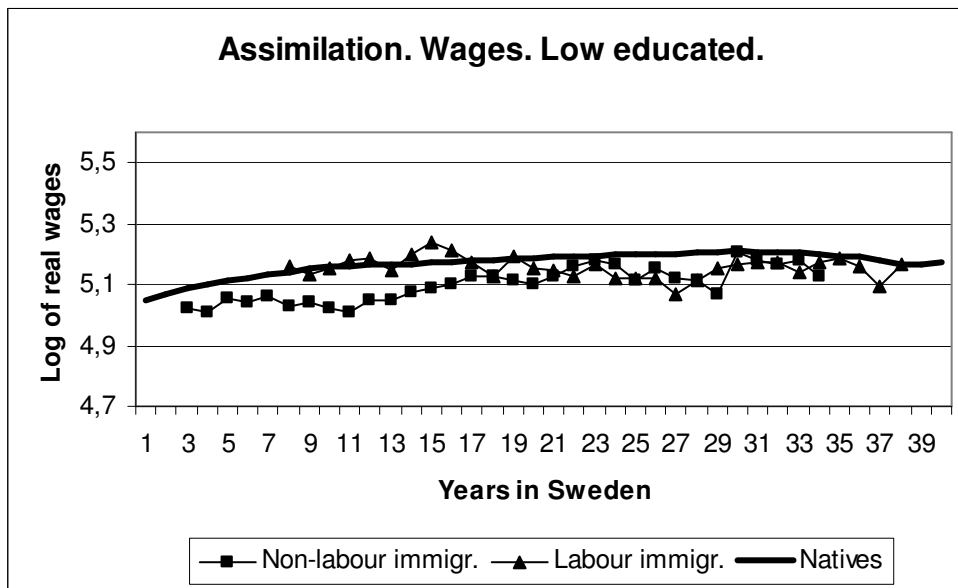


Figure 5. The profiles show wage paths for the two groups of immigrants and for a comparison group of native workers and which all lack tertiary education. Predictions based on the estimates in Table A1, column 1. The profiles for the two immigrant groups are drawn for individuals who are 25 years old at the time of immigration to Sweden. The natives are 25 years old at “0 years in Sweden” and 64 at “39 years in Sweden”.

With the figures on wage assimilation and unemployment assimilation, we expect to find a long-run assimilation also in terms of income of work. Figure 7 shows these curves for the low educated. We see that it takes approximately thirty in Sweden until incomes of work are equalised between non-labour immigrants and natives. Differences are large even after fifteen to twenty years in Sweden. Returning to Figures 5 and 6, we see that this is caused by a slow rate of wage assimilation. While days in unemployment initially are considerably larger for non-labour immigrants, the long run lagging of income of work is due to wage differences.

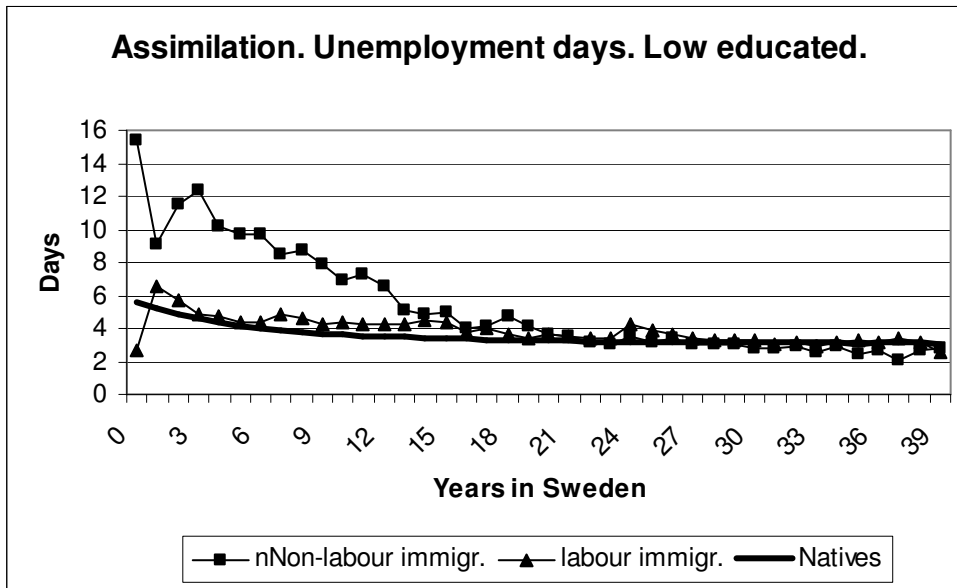


Figure 6. The profiles show unemployment paths for the two groups of immigrants and for a comparison group of native workers and which all lack tertiary education. Predictions based on the estimates in Table A1, column 2. The profiles for the two immigrant groups are drawn for individuals who are 25 years old at the time of immigration to Sweden. The natives are 25 years old at “0 years in Sweden” and 64 at “39 years in Sweden”.

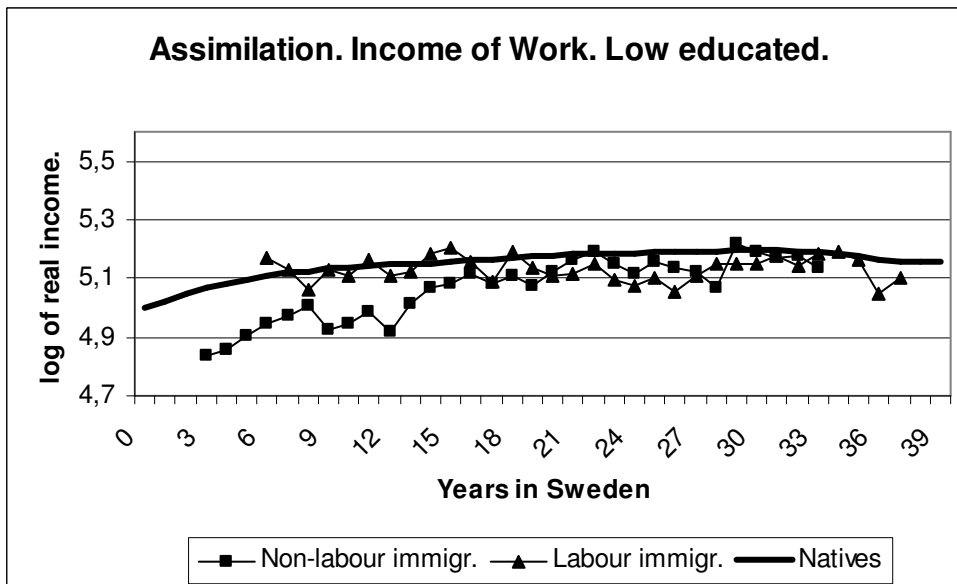


Figure 7. The profiles show work income paths for the two groups of immigrants and for a comparison group of native workers and which all lack tertiary education. Predictions based on the estimates in Table A1, column 3. The profiles for the two immigrant groups are drawn for individuals who are 25 years old at the time of immigration to Sweden. The natives are 25 years old at “0 years in Sweden” and 64 at “39 years in Sweden”.

The high educated.

Turning to workers with tertiary education in Figure 8, we see that wages of labour immigrants exceed those of natives during the first six years in Sweden. The difference here is very large, suggesting that this is due to highly productive workers that stay in Sweden for a limited period of time. As for the low educated, wages of non-labour immigrants fall short of native wages. The deviation is less dramatic and the differences vanish faster for the highly educated. Still some differences seem to remain also after very long periods in Sweden. The differences between the two immigrant groups are small after the first 10 years in Sweden.

The general impression is that wage assimilation is a greater problem to the low educated than it is to the high educated.

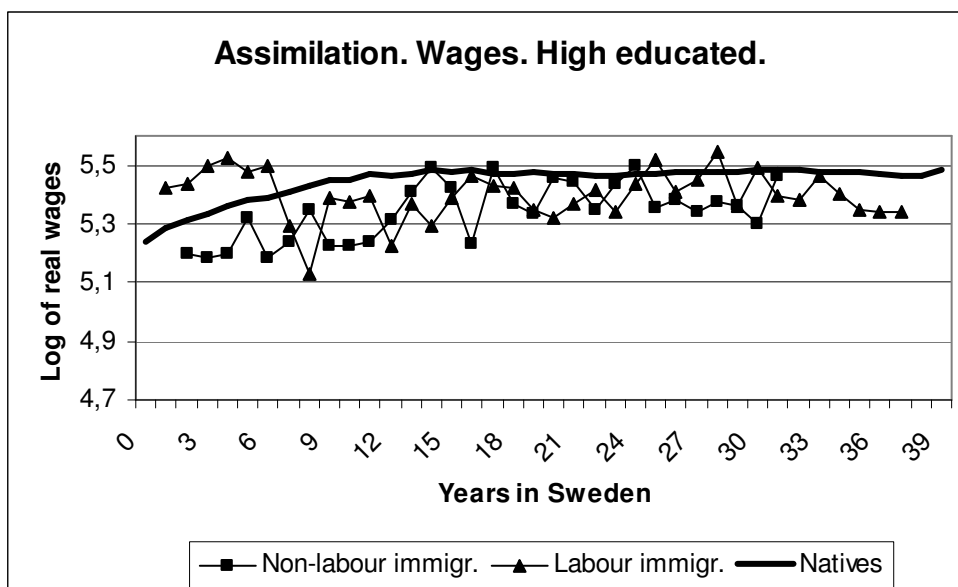


Figure 8. The profiles show wage paths for the two groups of immigrants and for a comparison group of native workers and which all have acquired tertiary education. Predictions based on the estimates in Table A1, column 1. The profiles for the two immigrant groups are drawn for individuals who are 25 years old at the time of immigration to Sweden. The natives are 25 years old at "0 years in Sweden" and 64 at "39 years in Sweden".

Figure 9 shows the adjustment in terms of unemployment as the number of years in Sweden increases. As for the low educated the situation for the high educated labour force immigrants is very similar to natives. But there are again differences for the non-labour immigrants for which it takes some twenty years before the number of unemployment days are in par with that of natives. The differences are though not as large as for the low educated.

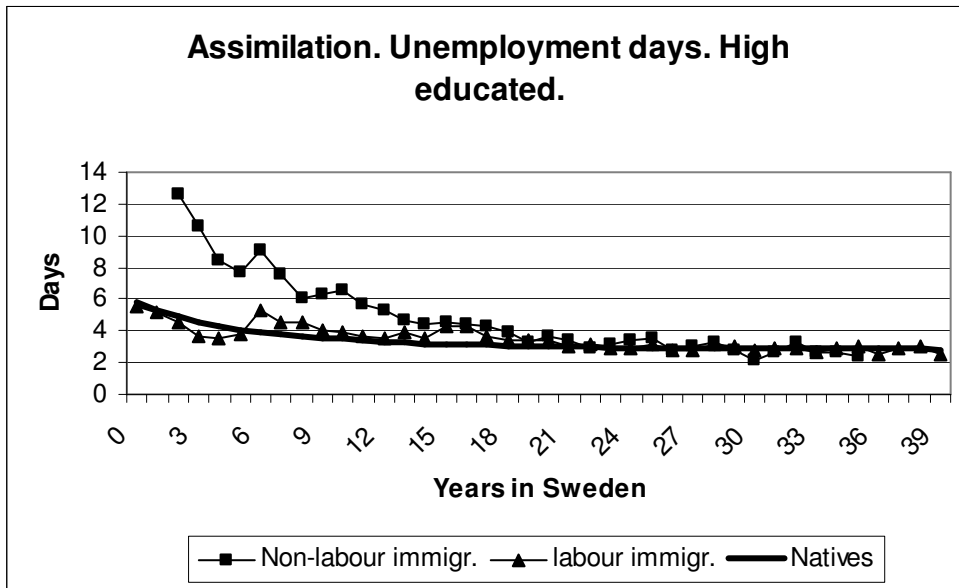


Figure 9. The profiles show unemployment paths for the two groups of immigrants and for a comparison group of native workers and which all have acquired tertiary education. Predictions based on the estimates in Table A1, column 2. The profiles for the two immigrant groups are drawn for individuals who are 25 years old at the time of immigration to Sweden. The natives are 25 years old at “0 years in Sweden” and 64 at “39 years in Sweden”.

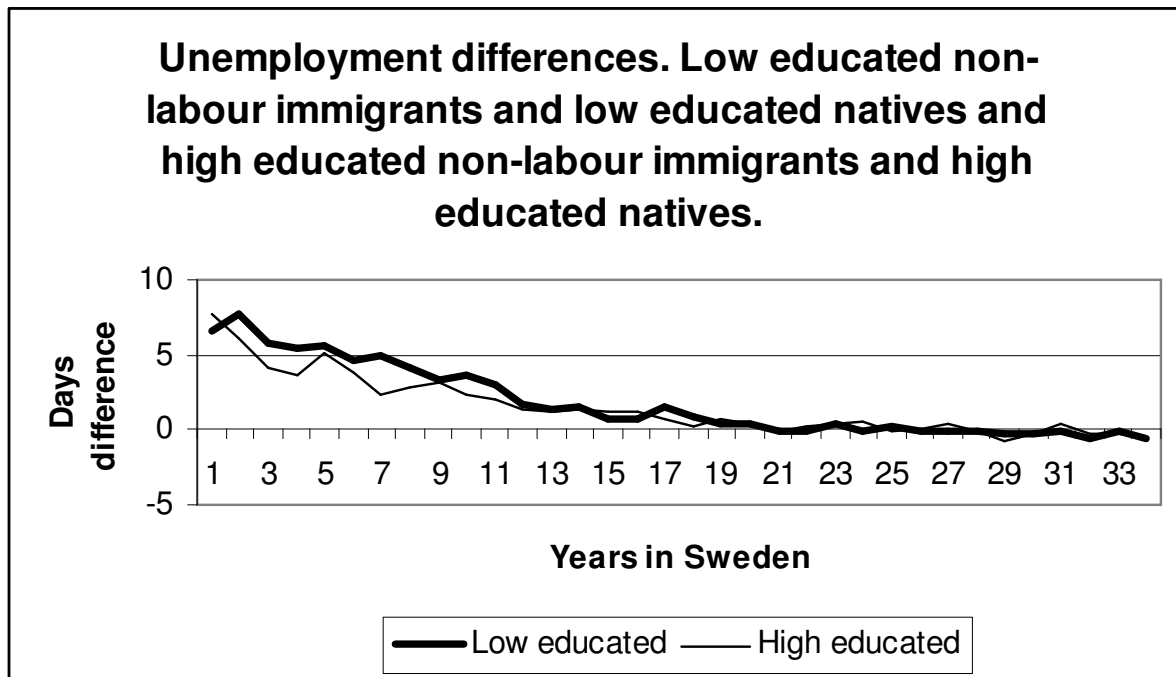


Figure 10 Differences in unemployment days between non-labour immigrants and natives for different education groups.

Are the low educated worse off in relative terms than the high educated when it comes to unemployment days? Figure 10 compares the differences in unemployment days between low educated non-labour immigrants and natives and correspondingly for the high educated. We

see that during the first twelve years the low educated non-labour immigrants are worse off when compared to natives than are the high educated. Many high educated immigrants may of course have taken on jobs for which they may be over qualified.

From Figure 11 we see that there is a steady but fairly slow adjustment of non-labour immigrants' work incomes to natives. While days in unemployment equalize between the groups in the long run, there remain wage differences (Figure 8) that account for the remaining differences in terms of incomes of work.

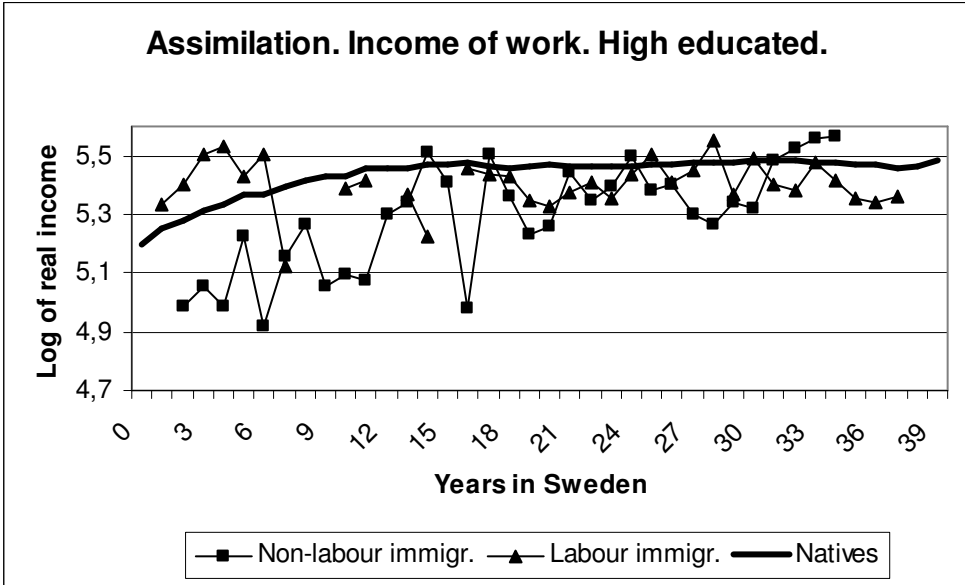


Figure 11. The profiles show work income paths for the two groups of immigrants and for a comparison group of native workers and which all have acquired tertiary education. Predictions based on the estimates in Table A1, column 3. The profiles for the two immigrant groups are drawn for individuals who are 25 years old at the time of immigration to Sweden. The natives are 25 years old at “0 years in Sweden” and 64 at “39 years in Sweden”.

In Figure 12 below, we compare how much the low educated non-labour immigrants income of work lag behind those of native income to how much the high educated non-labour immigrants income lag behind native high educated. The overall picture is that the high educated lag behind more than do the low educated. This is so despite the fact that in terms of employment, the low educated are relatively worse off than the high educated. The larger lag in Figure 12 for the high educated holds particularly during the first twelve years and thereafter the differences are less pronounced.

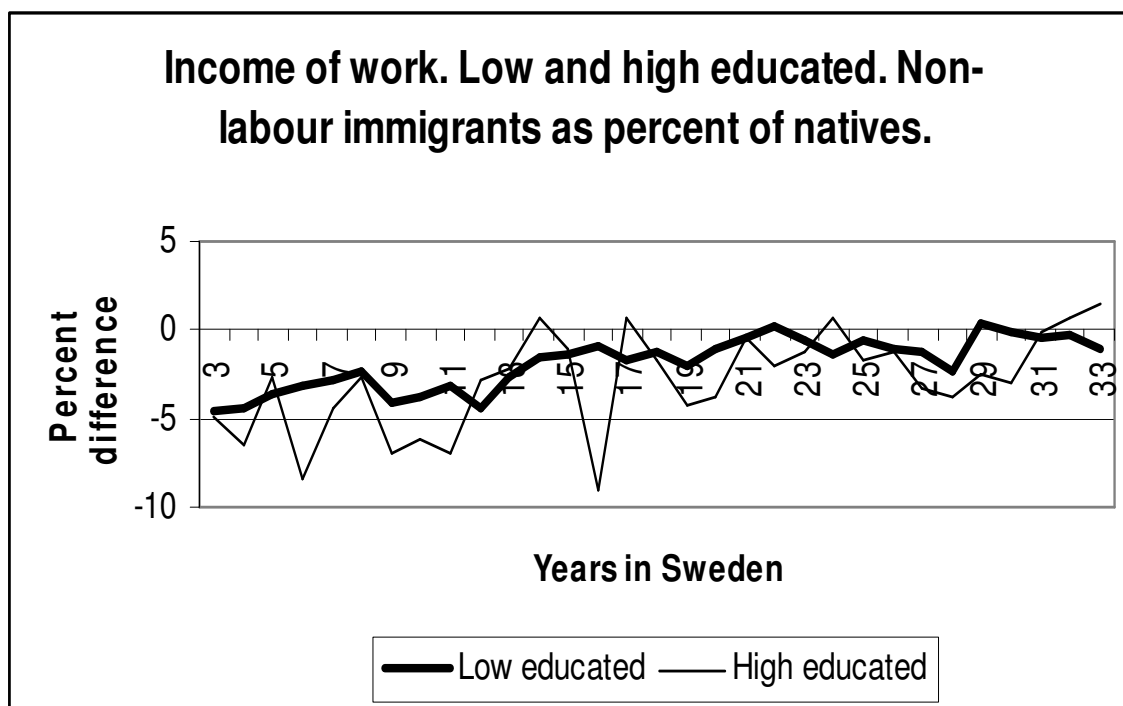


Figure 12. *Low and high educated non-labour immigrants' income of work as compared to Low and high educated natives' income of work.*

Assimilation within gender.

We now proceed to the question how wages, employment and work incomes adjust with time in Sweden for the two gender. For instance, how do wages of male immigrants compare to wages of male natives over time in Sweden and how do wages of female immigrants adjust to wages of female natives? If there is such assimilation, what is the rate? Figures 13 and 14 shed light on these issues.

By comparing native male and females, non-labour immigrant males and females and labour immigrant males and females across the figures, we first note that there is an implicit gender wage gap within all three groups. For both gender there is a long run wage gap to the native workers and but for females the immigrant groups almost catch up with the natives. For both gender, labour immigrant wages are initially higher than native workers. The initial drop of wages with time spent in Sweden is probably due to remigration of workers. In general the wage gaps between male immigrants and male natives are larger than the corresponding gaps for women.

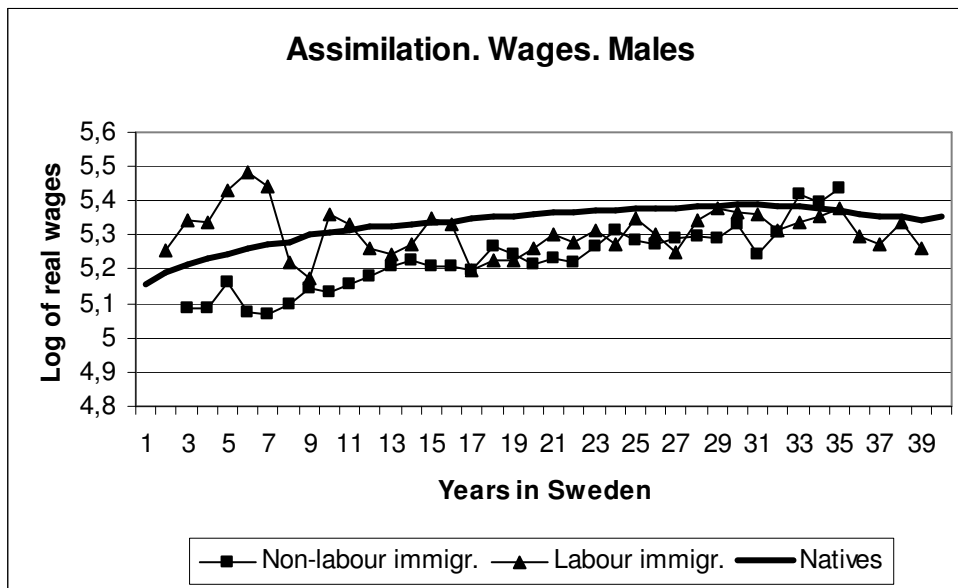


Figure 13. The profiles show wage paths for the two groups of immigrants and for a comparison group of native workers and which all are men. Predictions based on the estimates in Table A1, column 1. The profiles for the two immigrant groups are drawn for individuals who are 25 years old at the time of immigration to Sweden. The natives are 25 years old at “0 years in Sweden” and 64 at “39 years in Sweden”.

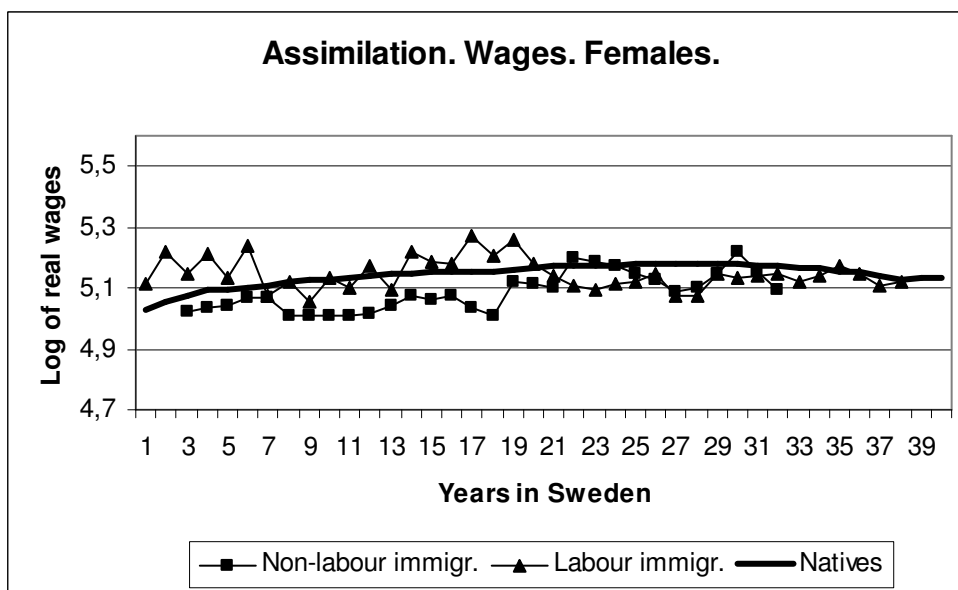


Figure 14. The profiles show wage paths for the two groups of immigrants and for a comparison group of native workers and which all are women. Predictions based on the estimates in Table A1, column 1. The profiles for the two immigrant groups are drawn for individuals who are 25 years old at the time of immigration to Sweden. The natives are 25 years old at “0 years in Sweden” and 64 at “39 years in Sweden”.

Figures 15 and 16 show the unemployment profiles of male and female workers. Female non-labour immigrants start on a higher level than male non-labour immigrants but the duration until par is reached with the unemployment rates of natives and labour immigrants of the

corresponding gender do not seem to differ much.

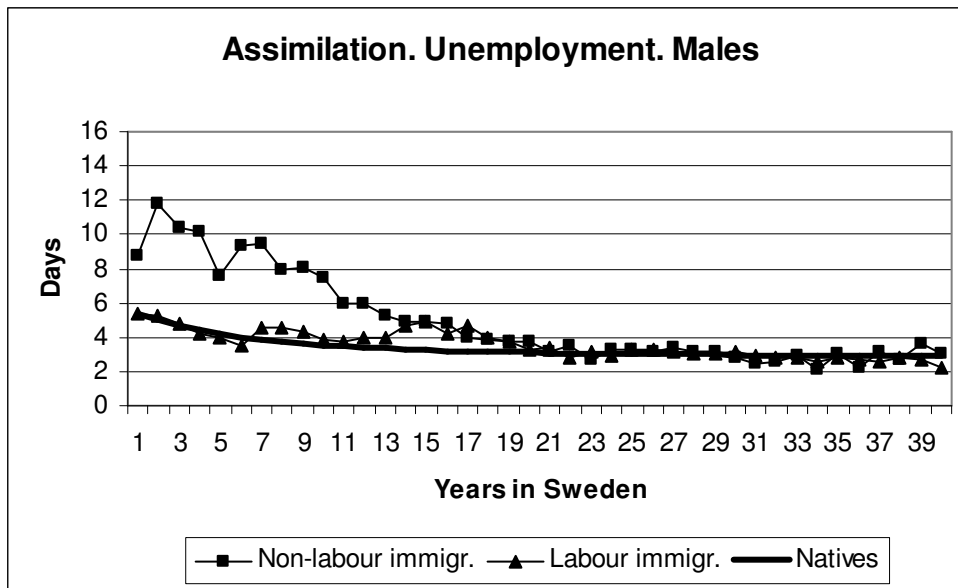


Figure 15. The profiles show unemployment paths for the two groups of immigrants and for a comparison group of native workers and which all are men. Predictions based on the estimates in Table A1, column 2. The profiles for the two immigrant groups are drawn for individuals who are 25 years old at the time of immigration to Sweden. The natives are 25 years old at “0 years in Sweden” and 64 at “39 years in Sweden”.

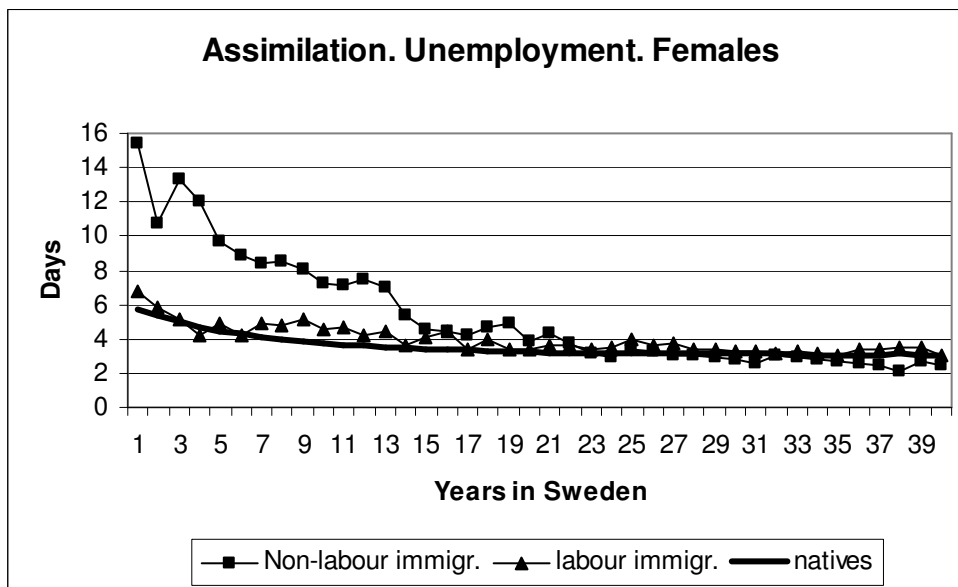


Figure 16. The profiles show unemployment paths for the two groups of immigrants and for a comparison group of native workers and which all are women. Predictions based on the estimates in Table A1, column 2. The profiles for the two immigrant groups are drawn for individuals who are 25 years old at the time of immigration to Sweden. The natives are 25 years old at “0 years in Sweden” and 64 at “39 years in Sweden”.

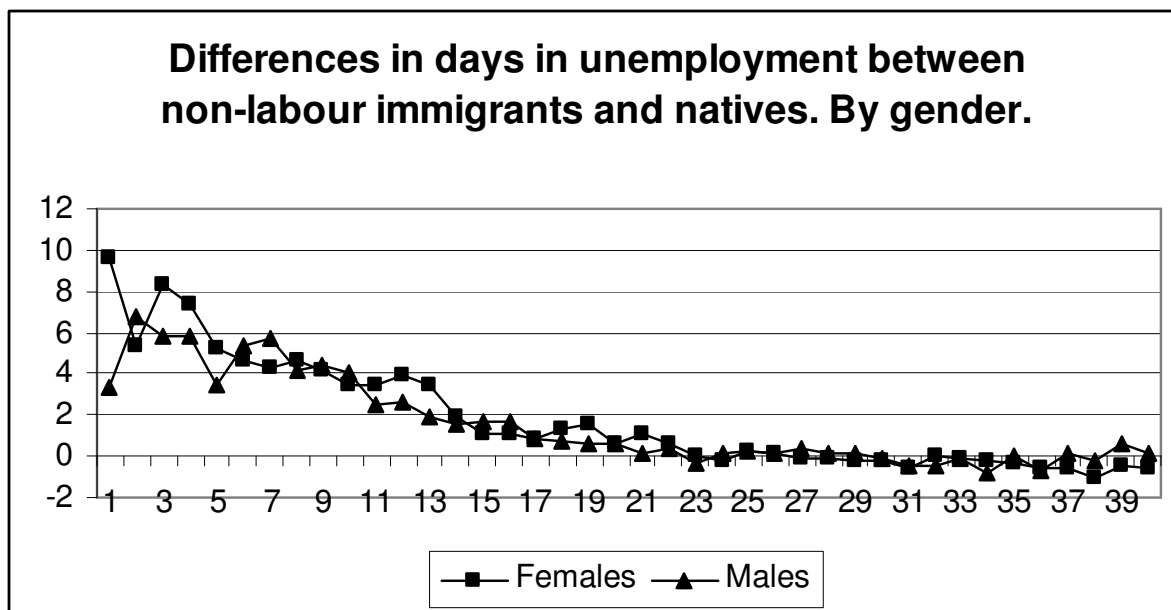


Figure 17. *Differences in unemployment days. Female and male non-labour immigrants compared to female and male natives.*

Figure 17 above shows that in relative terms, unemployment hits non-labour immigrant females slightly harder than males when compared to the corresponding native groups. The higher relative number of unemployment days vanish after slightly more than twenty years in Sweden.

From figures 18 and 19 we see that, due to higher unemployment, the gaps in terms of income of work are larger than in terms of wages. Males never reach par with native male workers in terms of wages while for females it takes approximately thirty years until par is reached.

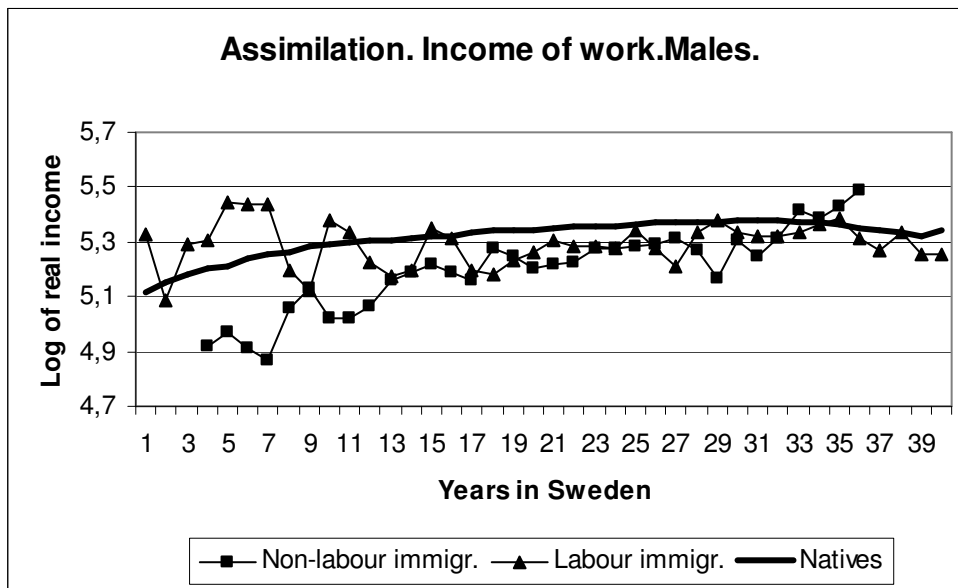


Figure 18. The profiles show work income paths for the two groups of immigrants and for a comparison group of native workers and which all are men. Predictions based on the estimates in Table A1, column 3. The profiles for the two immigrant groups are drawn for individuals who are 25 years old at the time of immigration to Sweden. The natives are 25 years old at “0 years in Sweden” and 64 at “39 years in Sweden”.

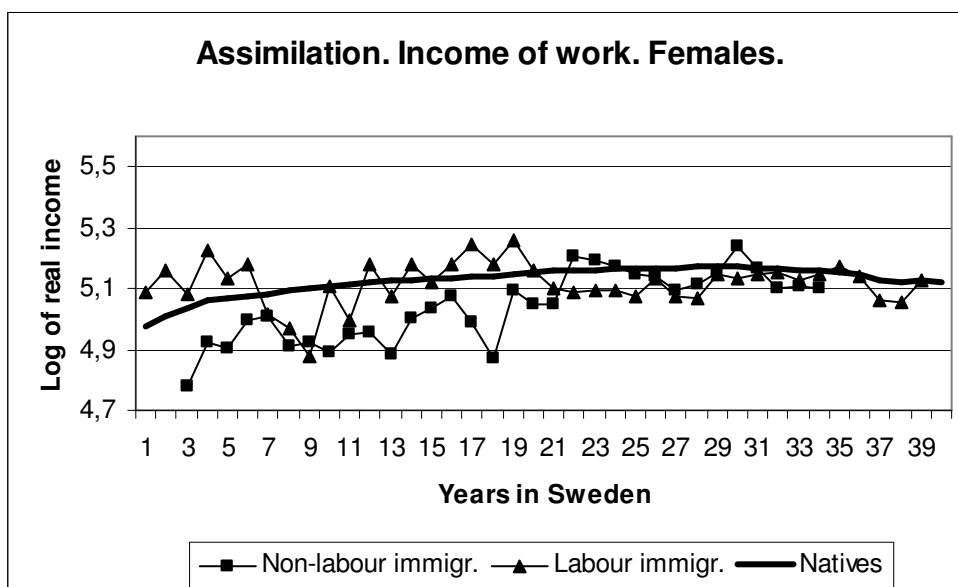


Figure 19. The profiles show work income paths for the two groups of immigrants and for a comparison group of native workers and which all are women. Predictions based on the estimates in Table A1, column 3. The profiles for the two immigrant groups are drawn for individuals who are 25 years old at the time of immigration to Sweden. The natives are 25 years old at “0 years in Sweden” and 64 at “39 years in Sweden”.

Do females non-labour immigrants lag behind native females more than male non-labour immigrants lag behind native males? Figure 20 illuminates the issue. We see that the contrary is the case. When we compare female non-labour immigrants’ income to those of female

natives' income we see that they lag behind less than male non-labour immigrants' income do when compared to male natives' incomes. The relative lag is thus larger for males than for females. This is particularly evident during the first five years in Sweden. Indeed, it seems that female non-labour immigrants are assimilated after approximately twenty years in Sweden since the differences when compared to female natives have vanished.

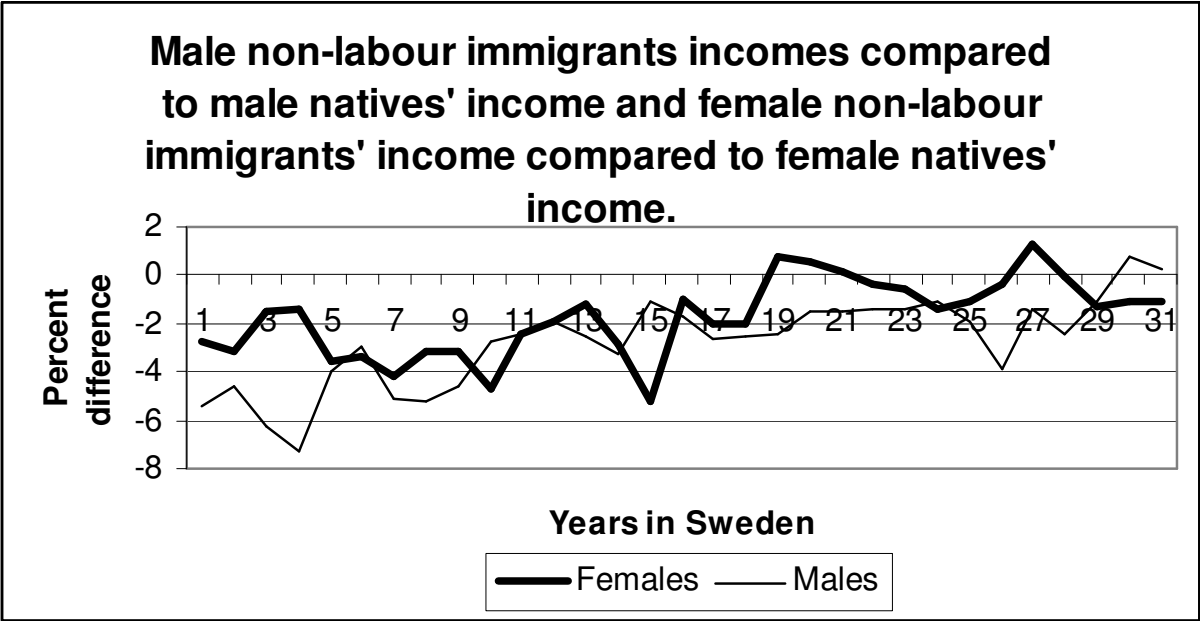


Figure 20. The figure compares the percentage lag of male non-labour immigrants' income to male natives' income with the corresponding lag of female wages.

Conclusions

We present an empirical model with which we are able to estimate assimilation rates for groups of immigrants and for natives without the problem of identification that afflicts the basic synthetic panel model due to Borjas (1985). The approach follows that of Bratsberg, Barth and Raaum (2006) but we extend the analysis beyond wage per time unit to cover also employment and work incomes. This extension to several crucial dependent variables, using a coherent model and the same data set, opens up for a deeper understanding of the assimilation process. In particular, we are able to pinpoint to what extent the finding that immigrants' income from work lag behind those of natives are due to lagging wages or to lagging employment.

We find that even after 30 to 35 years in Sweden immigrants wages lag behind wages of natives. The paths of wage adjustment are very different, though, for non-labour and labour

immigrants. Labour immigrants, residing in Sweden on a short term basis, fare very well on average in terms of wages and employment while for non-labour immigrants there are large wage and employment gaps to natives from the start. However, we also find that there are substantial lags in terms of employment days but in the long run in Sweden, the employment differences tend to vanish. (Figure 2.) Thus, to the extent that work incomes differ between natives and immigrants also in the long run, this is due to lagging wages.

When we break down the assimilation process into different sub groups, we find that for the low educated, wage assimilation is slow compared to employment assimilation. While it takes a full working life in Sweden until non-labour immigrant wages equalize with native wages (Figure 5), we see that employment assimilation is faster; after twenty years the number of days in unemployment is identical to natives' unemployment days (Figure 6). For the highly educated wage differences remain (Figure 8) for a long period while employment equalization is slightly less problematic (Figure 10) than for the low educated.

We have also seen that in terms of employment the assimilation rate appears somewhat faster for males than for females. However, in terms of work income, male immigrants generally lag behind male natives more than female immigrants lag behind female natives. Indeed, we find that female non-labour immigrants work incomes are in par with female natives income after approximately twenty years in Sweden. This is the only one of the sub groups we have focused on for which there seem to be a clear case of assimilation.

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APPENDIX

Table A1 Sample means, standard deviations, minimum and maximum values for selected variables of different groups. See notes at end of table.

Sample means

All observations

Variable	Obs	Mean	Std. Dev.	Min	Max
Monthly wage	603530	19635.58	8019,298	254	801742,3
Gender	603530	1.568089	.4953425	1 (man)	2 (woman)
Age	603530	42.41512	11.4461	18	65
Tenure	582526	4.490926	4.393281	0	24
Educ. level_1	603530	.1569997	.3638007	0	1
Educ. level_2	603530	.4798966	.4995961	0	1
Educ. level_3	603530	.1659636	.3720482	0	1
Educ. level_4	603530	.183222	.3868488	0	1
Educ. level_5	603530	.1457591	.3528649	0	1
Years since immigr.	603179	2.236711	7.516793	0	57
Days unemployed	602897	6.019743	28.0339	0	364
Non-labour immigr.	603530	.046006	.2094983	0	1
Labour immigr.	603530	.0484665	.2147501	0	1
Inflation	603530	1.005139	1.185934	-1.1	2.5

Non-Labour immigrants

Variable	Obs	Mean	Std. Dev.	Min	Max
Monthly wage	27766	17979.38	6285	7449	116171
Gender	27766	1.545955	.4978926	1	2
Age	27766	40.01758	10.65934	18	65
Tenure	26820	2.917599	3.620633	0	24
Educ. level_1	27766	.1810127	.3850357	0	1
Educ. level_2	27766	.4500468	.4975074	0	1
Educ. level_3	27766	.1354534	.3422134	0	1
Educ. level_4	27766	.1686955	.3744895	0	1
Educ. level_5	27766	.1327523	.3393129	0	1
Years since immigr.	27745	15.7255	9.7145	0	57
Days unemployed	27725	14.85627	44.48017	0	363

Labour immigrants

Variable	Obs	Mean	Std. Dev.	Min	Max
Monthly wage	29251	19449.14	7716	8056	205400
Gender	29251	1.6128	.4871184	1	2
Age	29251	45.80924	10.13	18	65
Tenure	28204	4.682953	4.418868	0	24
Educ. level_1	29251	.2264196	.4185209	0	1
Educ. level_2	29251	.4307887	.4951951	0	1
Educ. level_3	29251	.1404396	.3474485	0	1
Educ. level_4	29251	.1413627	.3484012	0	1
Educ. level_5	29251	.1535674	.3605397	0	1
Years since immigr.	29210	25.08887	12.91098	0	56

Days unemployed 29182 5.752313 28.54762 0 363

Natives

Variable	Obs	Mean	Std. Dev.	Min	Max
Montly wage	546513	19729.7	8104,013	254	801742
Gender	546513	1.566821	.4955153	1	2
Age	546513	42.35526	11.51108	18	65
Tenure	527502	4.560652	4.412601	0	24
Educ. level_1	546513	.1520641	.3590833	0	1
Educ. level_2	546513	.4840416	.4997457	0	1
Educ. level_3	546513	.1688798	.374646	0	1
Educ. level_4	546513	.1862005	.3892687	0	1
Educ. level_5	546513	.146002	.3531086	0	1
Days unemployed	545990	5.585324	26.82601	0	364

Notes: Wages is the full time equivalent monthly wage rate covering a fixed wage, fixed extra wages, bonuses, performance pay, different wage compensations etc. Education levels are: **1:** Pre high school education (SUN100-206); **2:** 2 or 3 years high school (SUN310-337) **3:** tertiary education <3 years (SUN410-527) **4:** tertiary education at least 3 years (SUN 530-557) **5:** Research education (SUN 600-640). Tenure is the number of years with the present employer. For workers in the public sector, this variable is roughly represented as number of years in the public sector. No information on tenure is available for the years before 1970.

Table A2. Classification of immigrants (country of birth) into labour and non-labour immigrants

Country	Classification
Albania	Non-labour
Algeria	Non-labour
Angola	Non-labour
Argentina	Non-labour
Armenia	Non-labour
Australia	Labour
Austria	Labour
Bahrain	Non-labour
Bangladesh	Non-labour
Belarus	Non-labour
Belgium	Labour
Benin	Non-labour
Bolivia	Non-labour
Bosnia and Herzegovina	Non-labour
Botswana	Non-labour
Brazil	Non-labour
Bulgaria	Non-labour
Cambodia	Non-labour
Cameroon	Non-labour
Canada	Labour
Cape Verde	Non-labour
Chile	Non-labour
China	Non-labour
Colombia	Non-labour
Democratic Republic of the Congo	Non-labour
Republic of the Congo	Non-labour
Croatia	Non-labour
Cuba	Non-labour
Cyprus	Non-labour
Czech Republic/Czechoslovakia	Non-labour
Denmark	Labour
Djibouti	Non-labour
Dominica	Non-labour
Dominican Republic	Non-labour
East Germany	Non-labour
Ecuador	Non-labour
Egypt	Non-labour
El Salvador	Non-labour
Eritrea	Non-labour
Estonia	Non-labour
Ethiopia	Non-labour
Finland	Labour
France	Labour

Gambia	Non-labour
Georgia	Non-labour
Germany	Labour
Ghana	Non-labour
Greece	Non-labour 1967-74; else labour
Guatemala	Non-labour
Guinea	Non-labour
Guyana	Non-labour
Honduras	Non-labour
Hong-Kong	Non-labour
Hungary	Non-labour
Iceland	Labour
India	Non-labour
Indonesia	Non-labour
Iran	Non-labour
Iraq	Non-labour
Ireland	Labour
Israel	Non-labour
Italy	Labour
Ivory Coast	Non-labour
Jamaica	Non-labour
Japan	Labour
Jordan	Non-labour
Kenya	Non-labour
Dem. People's Republic of Korea	Non-labour
Republic of Korea	Non-labour
Laos	Non-labour
Latvia	Non-labour
Lebanon	Non-labour
Liberia	Non-labour
Libya	Non-labour
Lithuania	Non-labour
Luxembourg	Labour
Republic of Macedonia	Non-labour
Malaysia	Non-labour
Mali	Non-labour
Mauritius	Non-labour
Mexico	Non-labour
Morocco	Non-labour
Mozambique	Non-labour
Nepal	Non-labour
Netherlands	Labour
New Zealand	Labour
Nicaragua	Non-labour
Nigeria	Non-labour
Norway	Labour
Pakistan	Non-labour
Palestine	Non-labour

Panama	Non-labour
Paraguay	Non-labour
Peru	Non-labour
Philippines	Non-labour
Poland	Non-labour
Portugal	Non-labour 1932-1975; else Labour
Romania	Non-labour
Russia	Non-labour
Senegal	Non-labour
Sierra Leone	Non-labour
Singapore	Non-labour
Slovakia	Non-labour
Slovenia	Non-labour
Somalia	Non-labour
South Africa	Non-labour
Spain	Non-labour 1936-1975; else Labour
Sri Lanka	Non-labour
Sudan	Non-labour
Switzerland	Labour
Syria	Non-labour
Tanzania	Non-labour
Togo	Non-labour
Trinidad and Tobago	Non-labour
Tunisia	Non-labour
Turkey	Labour
Uganda	Non-labour
Ukraine ^[26]	Non-labour
United Arab Emirates	Non-labour
United Kingdom	Labour
United States	Labour
Uruguay	Non-labour
Uzbekistan	Non-labour
Venezuela	Non-labour
Vietnam	Non-labour
Zambia	Non-labour
Zimbabwe	Non-labour

Table A3. Full regression results.

Independent variable	Log of Real Wage	Log of UnemplDays	Log of Real Income of Work
Non-LabImmXInflation		(20.29)**	(82.71)**
Gender	-0.087	-0.072	0.004
		(0.005)	(-0.086)
		(9.76)**	(2.09)*
LabImmXInflation	(132.59)**	(1.38)	(123.44)**
Age	0.022	0.005	0.003
		(-0.125)	(0.016)
		(0.66)	(2.02)*
Unempl.	(26.59)**	(28.52)**	(17.32)**
Age^2	-0.009	0.002	0.001
	(-0.000)		(-0.000)
	(44.07)**		(1.75)
UnempXNon-LabImm	(13.75)**	(21.71)**	(6.08)**
Age^3	0.001	-0.000	0.005
	(0.000)		(-0.000)
	(-0.82)		(4.31)**
UnempXLabImm	(6.01)**	(17.31)**	(0.58)
Tenure	0.002	-0.228	0.004
	(0.011)		(0.011)
	(2.73)**		(4.31)**
InUnemplDays	(30.27)**	(126.92)**	(28.61)**
Tenure^2	-0.153	0.023	3.448
	(-0.001)		(-0.001)
	(4.82)**		(101.79)**
InUnemplDays^2	(26.27)**	(85.96)**	(23.49)**
Tenure^3	0.093	-0.001	-8.145
	(0.000)		(0.000)
	(-1.11)		(90.56)**
InUnemplDays^3	(20.51)**	(62.93)**	(18.10)**
Educ_2	-0.016	-0.016	4.243
	(0.040)		(0.040)
	(-0.34)		(85.35)**
InUnemplDaysXYearsSwe	(48.34)**	(3.69)**	(45.32)**
Educ_3	-0.006	-0.057	0.000
	(0.107)		(0.106)
	(6.08)**		(0.08)
InUnemplDaysXNon-LabImm	(94.40)**	(9.81)**	(87.58)**
Educ_4	0.007	-0.109	-0.013
	(0.185)		(0.182)
	(4.55)**		(7.65)**
InUnemplDaysXLabImm	(153.08)**	(17.61)**	(141.91)**
Educ_5	0.006	-0.021	-0.008
	(0.398)		(0.393)
	(3.41)**		(4.11)**
AgeXNon-LabImm	(136.81)**	(1.42)	(127.09)**
Non-LabImm	-0.003	0.229	-0.021
	(0.074)		(0.074)
	(-0.71)		(5.04)**
Age^2XNon-LabImm	-1.5	(-2.507)	(-2.99)
LabImm	-0.000	(9.69)**	(5.63)**
	(-0.035)		(0.000)
	(-1.11)		(-0.047)
Age^3XNon-LabImm	(3.48)**	(4.06)**	(4.20)**
YearsSweXNon-LabImm	0.000	0.000	-0.000
	(-0.003)		(-0.004)
	(2.17)*		(1.84)
AgeXLabImm	(2.35)*	(2.50)*	(3.88)**
YearsSwe^2XNon-LabImm	0.001	-0.002	0.001
	(0.000)		(0.000)
	(3.50)**		(3.37)**
Age^2XlabImm	(5.28)**	(0.45)	(6.33)**
YearsSwe^3XNon-LabImm	0.000	0.000	0.000
	(-0.000)		(-0.000)
	(-1.29)		(1.67)
Age^3XLabImm	(5.37)**	(1.67)	(6.14)**
YearsSweXLabImm	-0.000	-0.000	-0.000
	(-0.003)		(-0.004)
	(2.36)*		(3.71)**
TenureXNon-LabImm	(3.14)**	(2.32)*	(4.00)**
YearsSwe^2XLabImm	0.003	-0.248	0.004
	(0.000)		(0.000)
	(-1.86)		(2.28)*
Tenure^2XNon-LabImm	(2.90)**	(2.49)*	(3.55)**
YearsSwe^3XLabImm	0.000	0.031	0.000
	(-0.000)		(-0.000)
	(-0.92)		(0.28)
Tenure^3XNon-LabImm	(2.41)*	(2.51)*	(2.88)**
Inflation	-0.000	-0.001	-0.000
			(0.047)

	(24.47)**	((14902)***)	(23.45)**
Professio 210	-0.00233	-0.0167	-0.203
	((12533)***)	(3.163)**	((2648)***)
Professio 211	0.00291	-0.000	0.002
	((10139)***)	(13.00)**	((22970)***)
Professio 212	-0.00207	-0.0064	-0.228
	((2659)***)	(10.96)**	(72.09)**
Professio 213	-0.00262	0.080	-0.027
	(8.76)**	(5.02)**	(8.38)**
Professio 214	-0.00571	0.10085	-0.455
	((14365)***)	(6.07)**	((132334)***)
Professio 215	-0.00616	-0.076	-0.009
	((47864)***)	(3.93)**	(10.03)**
Professio 216	-0.0493	-0.138	-0.1025
	(16.62)**	(9.38)**	((7534)***)
Professio 217	-0.02671	0.00215	-0.0259
	((26829)***)	(10.83)**	((2055)***)
Professio 218	-0.00172	0.00322	-0.01699
	((44257)***)	(25.40)**	((3668)***)
Professio 219	-0.0038	0.00292	-0.0308
	(8.06)**	(4.50)**	(7.00)**
Professio 220	-0.0041	0.00289	-0.0088
	((8235)***)	(10.45)**	((71154)***)
Profession 241	0.0089	-0.10501	0.0215
	(795130)**	((7.20)***)	(72.08)**
Profession 242	0.00257	-0.00049	0.01254
	(540234)**	((1.00))	(47.464)**
Profession 243	0.04215	-0.04089	0.04316
	((23733)***)	((3.61)***)	((22735)***)
Profession 244	0.003	-0.00023	0.0704
	(470432)**	(0.00)	(40.053)**
Profession 245	0.009	-0.0325	0.04096
	(20.34)**	(0.82)	(28.72)**
Profession 246	0.000	-0.02889	0.00064
	(15.10)***)	(3.34)**	(16.139)***)
Profession 247	0.003	-0.00074	0.00541
	(96.80)**	(5.02)**	(93.23)**
Profession 248	0.026	-0.102477	0.48315
	((1265972)***)	(8.38)**	((1264890)***)
Profession 249	0.0090	-0.04039	0.10785
	(38.94)**	((2.33)***)	(23.80)**
Profession 311	0.0050	-0.00060	0.00854
	(20.69)**	((13924)***)	(10.89)**
Profession 312	0.009	-0.10370	0.10087

	(22.83)**	(81.96)**	(39.63)**
Profession 313	-0.0098	-0.0089	-0.058
	(29.75)**	(5.626)*	(27.23)**
Profession 314	-0.305	-0.0335	0.3104
	(57.95)**	(3.40)**	(32.58)**
Profession 315	-0.279	0.00876	-0.2823
	(42.93)**	(3.78)**	(39.59)**
Profession 320	-0.189	-0.0125	-0.252
	(55.25)**	(0.39)	(62.845)**
Profession 329	-0.182	0.013	-0.1666
	(60.06)**	(0.23)	(55.879)**
Profession 322	-0.168	-0.0247	-0.1257
	(28.44)**	(0.36)	(39.64)**
Profession 323	-0.1345	-0.0574	-0.1386
	(39.06)**	(3.60)**	(38.94)**
Profession 324	-0.0502	-0.1397	-0.090
	(20.95)**	(3.98)**	(19.29)**
Profession 330	-0.1319	0.086	-0.1097
	(58.59)**	(10.518)**	(52.75)**
Profession 333	-0.139	0.166	-0.184
	(73.56)**	(16.52)**	(63.51)**
Profession 332	-0.135	0.038	-0.122
	(51.15)**	(0.37)	(19.23)**
Profession 334	-0.0970	-0.043	-0.098
	(27.89)**	(2.38)*	(26.75)**
Profession 321	-0.217	1.0669	-0.1160
	(48.06)**	(12.39)**	(44.92)**
Profession 322	-0.0574	-0.0229	-0.078
	(22.06)**	(3.23)**	(27.85)**
Profession 643	-0.236	-0.592	0.0286
	(51.69)**	(25.35)**	(45.68)**
Profession 642	-0.189	0.0359	-0.1984
	(28.33)**	(8.096)*	(19.96)**
Profession 645	-0.246	-0.256	-0.246
	(12.92)**	(2.68)**	(11.60)**
Profession 646	-0.152	1.4144	-0.122
	(46.06)**	(35.676)**	(44.86)**
Profession 645	-0.0083	-0.006	-0.063
	(-1.34)	(0.25)	(1.66)
Profession 308	-0.287	-0.255	-0.288
	(12.69)**	(2.30)*	(12.10)**
Profession 400	0.1384	0.046	-0.249
	(121.25)**	(0.96)	(101.25)**
Profession 412	-0.025	-0.628	-0.026

		(8.38)**	(31.85)***	(3.1892)*
Profession 823		-0.0106	-0.135	-0.1034
		(38.858)***	(9.81)**	(24.58)***
Profession 824		-0.063	0.3092	0.0028
		(13.05)**	(14.093)***	(8.046)*
Profession 824		-0.082	-0.0106	-0.068
		(21.460)***	(4.280)*	(15.605)***
Profession 825		-0.006	-0.1148	0.0015
		(7.572)**	(8.05)**	(4.079)*
Profession 826		-0.075	0.01349	-0.065
		(30.62)**	(8.1726)*	(27.06)**
Profession 827		-0.0459	0.0263	-0.040
		(16.88)**	(14.204)***	(13.98)**
Profession 838		-0.068	-0.1158	-0.046
		(19.33)**	(2.69)**	(9.522)***
Profession 839		-0.0504	-0.082	-0.066
		(17.39)***	(3.294)*	(6.85)**
Profession 833		-0.1001	-0.276	-0.01101
		(5.072)*	(3.92)**	(5.148)*
Profession 834		-0.048	0.0608	0.0150
		(49.196)**	(2.80)**	(42.80)**
Profession 833		-0.069	0.066	-0.064
		(14.370)***	(4.1856)*	(12.56)**
Profession 834		-0.026	0.00448	-0.0026
		(7.053)*	(0.48)	(5.1989)*
Profession 900		-0.245	0.0270	-0.0286
		(27.09)**	(4.263)*	(24.50)**
Profession 940		-0.1162	-0.076	-0.121
		(5.83)**	(0.53)	(4.87)**
Profession 912		-0.02447	0.11375	0.1288
		(93.65)**	(9.66)**	(83.75)***
Profession 913		-0.02004	0.29241	-0.03648
		(84.35)***	(26.48)**	(77.63)**
Profession 913		-0.011507	0.05823	-0.02121
		(48.456)***	(2.95)**	(46.65)***
Profession 914		-0.01070	0.12881	-0.0480
		(20.02)**	(4.35)**	(20.88)**
Profession 919		-0.02036	0.05912	-0.02179
		(45.58)**	(3.885)**	(42.93)**
Profession 926		-0.06081	1.064143	-0.08075
		(13.98)**	(146.28)***	(10.71)**
Profession 937		-0.01607	0.18387	-0.0492
		(3.20)**	(4.127)*	(4.53)**
Profession 932		-0.01030	-0.01064	-0.0645

Region 1983	(59.56)**	(6.98)**	(52.59)**
Region 1983	-0.036	15 0.076	15 -0.035
	(6.88)**	(8.81)**	(6.1370)*
Region 1990	0.015	16 -0.260	16 0.018
	(2.75)**	(8.98)**	(3.1170)*
Region 1999	-0.001	17 0.110	17 0.003
	-0,12	((25946)***	(0.83)
Region 1998	0.020	18 0.080	18 -0.065
	(21.83)**	(18.89)**	(60.95)**
Region 1998	0.000	19 0.000	19 0.000
	(.)	(8230)*	(1.66)
Region 1990	0.084	20 0.009	20 0.042
	(85.51)**	(12.08)**	(48.09)**
Region 2001	0.099	21 -0.016	21 0.040
	(100.65)**	((1872)***	(40.32)**
Region 2002	0.107	22 0.000	22 0.000
	(101.77)**	(17.74)**	(1.86)
Region 2002	0.122	23 -0.106	23 0.039
	(116.27)**	(23.56)**	(42.38)**
Region 24		24 0.019	24 -0.009
		(16.38)**	(2.04)*
Region 25		25 0.026	25 -0.087
		((2315)***	(1.88)
Immigrant Year 1944	1944 0.041	1944 0.013	4944 -0.050
	-0,44	(10.02)**	(0.89)
Immigrant Year 1945	1945 0.002	1945 0.002	5945 -0.087
	-0,04	(7.65)*	(0.83)
Immigrant Year 1946	1946 0.040	1946 0.004	6946 -0.097
	-1,15	(4.08)*	(0.95)
Immigrant Year 1947	1947 0.046	7947 0.072	7947 -0.087
	(2.28)*	(3.02)*	(2.15)*
Immigrant Year 1948	1948 0.010	1948 0.012	8948 -0.085
	-0,63	(10.38)**	(0.39)
Immigrant Year 1949	1949 0.021	1949 0.013	9949 -0.127
	-1,08	(8.23)*	(2.45)*
Immigrant Year 1950	1950 -0.004	1950 -0.087	10950 -0.082
	-0,22	(8.05)*	(0.74)
Immigrant Year 1951	1951 0.040	1951 0.032	11951 0.038
	(2.64)**	(2.35)*	(2.33)*
Immigrant Year 1952	1952 0.013	1952 -0.082	12952 0.028
	-0,81	(8.83)*	(1.72)
Immigrant Year 1953	1953 0.015	1953 -0.092	13953 -0.081
	-0,87	(7.88)*	(0.73)
Immigrant Year 1954	1954 0.007	1954 -0.060	14954 0.006

	-0.36	(40837)*	(0.08)
Immigr Year 1955	1955 0.024	1955 0.010	1955 0.013
	(4.970)**	(40456)*	(21.124)*
Immigr Year 1956	1956 0.009	1956 0.028	1956 0.0118
	(3.610)**	(50802)*	(1.03)
Immigr Year 1959	1959 0.042	1959 0.068	1959 0.034
	(8.547)**	(1.38)	(61288)*
Immigr Year 1980	1980 0.036	1980 0.1027	1980 0.008
	(6.837)**	(30806)*	(50168)*
Immigr Year 1989	1989 0.065	1989 0.2007	1989 0.004
	(9.959)**	(70173)*	(7049)*
Immigr Year 1980	1980 0.028	1980 0.050	1980 0.022
	(9.08)**	(31598)*	(8.86)**
Immigr Year 1983	1983 0.045	1983 0.185	1983 0.085
	(7.117)**	(4.60)**	(50426)*
Immigr Year 1982	1982 0.002	1982 0.069	1982 0.0015
	(8.002)**	(2294)*	(5185)*
Immigr Year 1985	1985 0.005	1985 0.125	1985 0.000
	(7.907)**	(3.44)**	(7029)*
Immigr Year 1986	1986 0.040	1986 0.080	1986 0.089
	(2.215)**	(3.88)**	(61787)*
Immigr Year 1985	1985 0.042	1985 0.050	1985 0.088
	(8.996)**	(50795)*	(71121)*
Immigr Year 1988	1988 0.060	1988 0.105	1988 0.062
	(12.08)**	(3.49)**	(90897)*
Immigr Year 1989	1989 0.054	1989 0.092	1989 0.006
	(12116)**	(2.98)**	(90806)*
Immigr Year 1988	1988 0.068	1988 0.058	1988 0.055
	(12944)**	(51580)*	(91971)*
Immigr Year 1989	1989 0.028	1989 0.057	1989 0.028
	(5.73)**	(12.06)**	(4.99)**
Immigr Year 1990	1990 0.056	1990 0.109	1990 0.046
	(8.89)**	(5.00)**	(72598)**
Immigr Year 1993	1993 0.028	1993 0.068	1993 0.022
	(9.03)**	(2834)**	(3.01)**
Immigr Year 1992	1992 0.053	1992 0.052	1992 0.065
	(10.80)**	(8156)*	(10006)*
Immigr Year 1995	1995 0.087	1995 0.058	1995 0.002
	(12479)**	(40829)*	(10075)*
Immigr Year 1996	1996 0.080	1996 0.060	1996 0.020
	(14839)**	(2231)*	(40198)**
Immigr Year 1995	1995 0.096	1995 0.092	1995 0.004
	(12962)**	(3.74)**	(10966)**
Immigr Year 1998	1998 0.008	1998 0.025	1998 0.000

	(15.52)**	(1.80)	(13.56)**
Immigr Year 1999	1999 0.105	1999 0.040	1999 0.096
	(22.32)**	(1.53)	(19.24)**
Immigr Year 2000	2000 0.099	2000 0.192	2000 0.094
	(10.87)**	(3.78)**	(9.74)**
Immigr Year 2001	2001 0.100	2001 0.237	2001 0.100
	(9.24)**	(3.93)**	(8.69)**
Immigr Year 2002	2002 0.107	2002 0.487	2002 0.125
	(5.99)**	(4.89)**	(6.55)**
Constant	4.790	2.797	4.899
	(433.43)**	(48.76)**	(99.98)**
Observations	503914	581343	503769
R-squared	0.62	0.14	0.66



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